Cubic Ink® High Temperature 1901 VP

Easy-to-print material with good toughness and high heat resistance

Liquid Properties	Method	Value[1]	Unit
Viscosity (25 °C)	DIN EN ISO 3219	230	mPa·s
Density	DIN EN ISO 15212-1	1.17	g/mL
Critical Energy (E_c)	405 nm / 385 nm	4.0 / 4.3	mJ/cm^2
Depth of Penetration (D_p)	405 nm / 385 nm	0.31 / 0.20	mm
Tensile Properties			
Ultimate Tensile Strength	DIN EN ISO 527-5A[2]	63	MPa
Tensile Modulus	DIN EN ISO 527-5A[2]	2500	MPa
Elongation at Break	DIN EN ISO 527-5A[2]	4.8	%
Flexural Properties			
Flexural Strength	DIN EN ISO 178[2]	90	MPa
Flexural Modulus	DIN EN ISO 178[2]	2100	MPa
Deflection at Fracture	DIN EN ISO 178[2]	6.8	%
Impact Properties			
Izod notched	DIN EN ISO 180	14	J/m
Charpy notched	DIN EN ISO 179-1	0.8	kJ/m^2
Hardness			
Shore Hardness	DIN EN ISO 7619	85	D
Thermomechanical Properties			
T_g	TMA[3]	>300	°C
HDT A	DIN EN ISO 75	122	°C
HDT B	DIN EN ISO 75	272	°C
CTE (−90 °C, 20 °C)	DIN EN ISO 11359-2	73	x 10^{-6} K^{-1}
CTE (50 °C, 200 °C)	DIN EN ISO 11359-2	130	x 10^{-6} K^{-1}
Specific Heat Capacity, 20 °C	DIN EN ISO 11357-4	0.96	J/(g·K)
Flammability, horizontal	UL 94, at 3.2 mm	HB (FH-3)	-

Electrical Properties

Dielectric strength	IEC60243-1	26	kV/mm
Relative Permittivity (Dielectric Constant, 23 °C, 10 000 Hz)	IEC60250	6.1	-
Relative Permittivity (23 °C, 8 - 20 GHz)[4]	Internal	2.8	
Dissipation Factor (23 °C, 10 000 Hz)	IEC60250	0.009	-
Volume Resistivity	IEC60093	1.4 x 10^{15}	Ω·cm
Comparative Tracking Index	IEC60112	>600	V

Other Properties

Water Uptake, 24 h, 23 °C	Internal	0.4	%
Performance after Water Uptake, 24 h, 23 °C[5]	Internal	<3	%
Thermal Ageing 125 °C for 1000 h[6]	Internal	<1	%
UV Ageing for 168 h[6]	ISO 4892-3[7]	10	%
In-vitro cytotoxicity	DIN EN ISO 10993-5/-12[8]	Passed	-

Color, Storage, Compatibility

Natural color is translucent light yellow. Additional colors available on request.

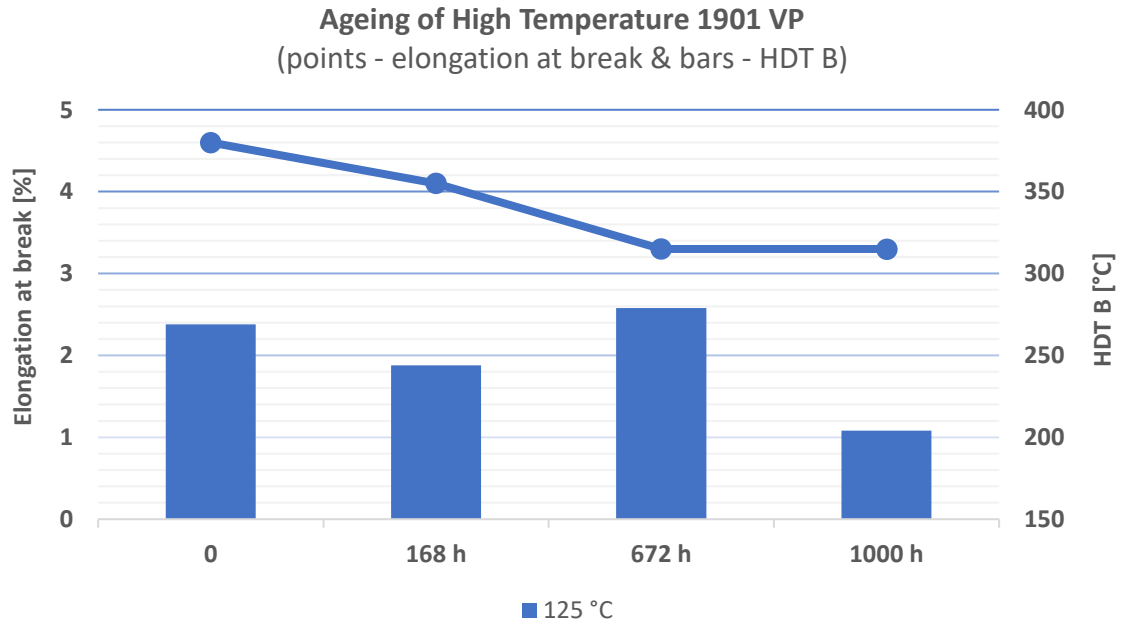
For best performance, use within 12 months of manufacturing date. Store at room temperature and protect from light. Stir prior to use.

Cubic Ink High Temperature 1901 VP is compatible with Cubic Ink Cleaner 400.

[1]Properties may vary with post-processing – 2 x 15 min UV post-cure via *Formlabs Fomcure (*1st Gen, LED, 375 and 405 nm) at 80 °C. All material properties can vary with color, printer, print settings, object orientation, part geometry, post-processing and age of sample. Properties in TDS are measured on uncolored resin. [2]5 mm/min; [3]–100 - 350 °C, 5 K/min; [4]Successfully tested at customer; [5]Relative loss of tensile testing and HDT B compared to reference, DIN EN ISO 527-5A, 5 mm/min and DIN EN ISO 75; [6]Relative loss of e-modulus and tensile strength compared to reference, DIN EN ISO 527-5A, 5 mm/min; [7]QUV weathering tester; [8]Testing at 22 °C, 61% rel. humidity, duration of extraction 24 h at 37 °C.

Chemical Resistance	Mass Gain [%][1]
Water	0.4
Acetic Acid (5%)	0.4
Hydrochloric Acid (1%)	0.4
Nitric Acid (5%)	0.5
Sodium Hypochlorite (10%)	0.5
Hydrogen Peroxide (3%)	0.3
Sodium Hydroxide (1%)	0.3
Isopropyl Alcohol	0.1
Ethanol	0.2
Methanol	0.4
Butyl Glycol Acetate	0.2
Super Gasoline	0.2
Acetone	0.3
Methyl Ethyl Ketone	0.2
Long Chain Alkanes	Successfully tested at customers

[1]Percental weight gained after 24 h submersion of printed and post-cured (2 x 15 min UV post-cure via *Formlabs Fomcure (*1st Gen, LED, 375 and 405 nm) at 80 °C) 1 x 1 x 1 cm^3 cubes.



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